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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/743,641

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EXAMINER

BLACKWELL, GWENDOLYN

ART UNIT

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/743,641	<b>Applicant(s)</b> CHANG ET AL.	
	<b>Examiner</b> GWENDOLYN BLACKWELL	<b>Art Unit</b> 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 May 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-17 and 30-53 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 47, 48, 51 and 52 is/are allowed.
- 6) ☒ Claim(s) 1-17, 30-46, 49, 50 and 53 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 December 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

(1) The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

*(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.*

(2) Claims 1, 4, 5, 11-13, 16, and 34 are rejected under 35 U.S.C. 102(b) as being anticipated by Hirano et al. USP 5,028,495 for the reasons of record in the Office Action mailed on 27 June 2007.

(3) Claims 1, 4, 5, 11-13, 16, and 34 are rejected under 35 U.S.C. 102(b) as being anticipated by Jha et al. USP 5,553,770 for the reasons of record in the Office Action mailed on 27 June 2007.

(4) Claims 1-3, 7, 8, 10-13, 16, and 34 are rejected under 35 U.S.C. 102(b) as being anticipated by Mennucci USP 5,761,799 for the reasons of record in the Office Action mailed on 27 June 2007.

(5) Claims 1-17, 34-46, 49, 50, and 53 are rejected under 35 U.S.C. 102(b) as being anticipated by Hirano et al. JP 4-006173 for the reasons of record in the Office Action mailed on 27 June 2007.

(6) Claim 31 is rejected under 35 U.S.C. 102(b) as being anticipated by Ryan (US 4,725,509). Ryan teaches Ni/Cu/Ti/Cu/Ni where Ti is considered to have a metallic bond with the Cu layers. The recitation of what the thickness is prior to rolling is not considered to limit

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the final product of the strip or foil. The recitation of “cold rolling” is considered a process limitation that does not structurally define over the prior art.

***Claim Rejections - 35 USC § 102/103***

(7) The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

*(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.*

(8) The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

*A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.*

(9) Claims 1, 4, 5, 11-13, 16, and 34 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Hirano et al. USP 5,028,495 for the reasons of record in the Office Action mailed on 27 June 2007.

(10) Claims 1, 4, 5, 11-13, 16, and 34 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Jha et al. USPN 5,553,770 for the reasons of record in the Office Action mailed on 27 June 2007.

(11) Claims 1-30, 34-46, 49, 50, and 53-55 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Hirano et al. JP 4-006173 for the reasons of record in the Office Action mailed on 27 June 2007.

***Claim Rejections - 35 USC § 103***

12. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ryan (US 4,725,509).

Ryan teaches a braze strip or foil as discussed above but does not teach a thickness of a first and second layer of 0.012 inches thick (0.03 cm). Ryan teaches that depending upon the use of the filler metal, the thickness may be adjusted. For instance, in applications which utilize braze wire, the nominal thickness of the wire is about 0.05-0.125 cm, for braze foils, the thickness may be thinner. It would have been obvious to one of ordinary skill to adjust the thickness of the braze material based upon the intended use of the braze as Ryan clearly teaches that one of ordinary skill in the art recognizes these engineering choices (col. 3, lines 18-35).

13. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ryan (US 4,725,509) in view of Mizuhara (US 3,652,237).

Ryan teaches the braze strip or foil as discussed above but does not specify a composition of 15Cu-15Ni-70Ti, but does state that the foil may be about 15-21 Cu, 24-30 Ni, and the balance Ti. Mizuhara teaches a braze material that may comprise 5-30 % Cu, 5-30% Ni, and 40-90% Ti, and is preferably 15Cu-15Ni-70Ti. It would have been obvious to one of ordinary skill in the art at the time of the invention to adjust the composition of braze alloy of Ryan depending upon the material the braze was intended for use with as Mizuhara clearly teaches that a range of Cu-Ni-Ti is useful for brazing, and 15Cu-15Ni-70Ti is particularly known as a useful brazing composition.

***Response to Amendment***

14. In view of applicant's amendments with regard to "in the absence of heat treatment" the rejection with respect to 112 2<sup>nd</sup> paragraph in this regard are overcome and therefore withdrawn.

15. Applicant's arguments, see page 3, paragraph 4, filed May 26, 2009, with respect to Galasso have been fully considered and are persuasive. The rejections of claims 1, 4, 5, 11-13, 16, and 34 using Galasso has been withdrawn.

16. Applicant's arguments filed May 26, 2009 have been fully considered but they are not persuasive with respect to the rejections made under the prior art to Hirano, Jha, Mennucci and Ryan.

17. Applicant contends (1) that the cited prior art does not meet the claim limitations for Ti and/or Zr core sandwiched between metallic layers of copper and/or nickel, (2) that Hirano teaches heat treating, (3) that Jha teaches heat treating, (4) that Mennucci does not teach the claimed invention, and (5) that Ryan does not teach cold rolling to obtain the desired properties.

18. Generally, Applicant claims a core including one or both Ti and/or Zr sandwiched between metallic layers, wherein the core has a metallic bond with the metallic layers and the metallic bond is formed by roll-bonding without any heat treatment.

19. With regards to contention (1), while Applicant has argued the brittleness of Ti and/or Zr core sandwiched between metallic layers of Cu and/or Ni, Applicant's claimed invention is not limited to those particular materials. In particular, it is noted that claims 1, 10, and 37-41 are not limited to those particular materials. With regards to aforementioned claims, Applicant's

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arguments are not commensurate in scope with the claims. The rejections of the claims under individual prior art references will be addressed below.

20. With regards to contention (2), Applicant has argued that Hirano teaches a clad sheet undergoing annealing and rolling repeatedly which is different from the present invention which provides for a lamination of the core layer with the outer layers without heat treatment which allows for further processing and overcomes the embrittlement feature. This is not persuasive as Hirano specifically discloses that the core and outer layers are cold cladded, (column 2, lines 1-18; column 3, lines 3-6), which creates a metallic bond. Hirano specifically disclose that layers are laminated by cold rolling without heat treatment. After the lamination of the core and outer layers, other processes are conducted, but initially the layers are laminated together by cold rolling which meets Applicant's limitations. Subsequent processing rolls the laminate thinner to the desired thickness. However, once initially cold rolled to create the laminate, the laminate could be left at the thickness depending on the end use.

21. With regards to contention (3), Jha specifically discloses that the laminate is bonded together along the interface between the metal layers by sufficient force, (column 2, lines 50-55), thereby creating a metallic bond. Heating after the bonding step, is just subsequent processing. The bonding step is created by pressure rolling (cold rolling).

22. With regards to contention (4), Mennucci discloses the presently claimed structure. A brazing strip or foil only indicates a metal material that has the ability to melt. The metal laminate of Mennucci meets the claimed limitations. The copper strip is laminated to the

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titanium based metal strip by cold roll bonding and further thinned to a selected thickness by further cold rolling, (column 4, lines 20-32).

23. With regards to contention (5), although Ryan does not specifically indicated “cold” rolling, there is a teaching of rolling titanium, copper, and nickel sheets together to provide a composite foil. As it is well known in the art that rolling would include cold rolling, the limitation has been met.

24. For the reasons set forth above and for reasons of record, the rejections of claims 1-17, 30-46, 49-50, and 53 not withdrawn above are maintained.

25. It is noted that claims 37-40, 42, and 45 do not limit the claim with regard to any heat treatment or process.

#### ***Allowable Subject Matter***

26. Claims 47-48 and 51-52 are allowed over the prior art of record for reasons of record.

#### ***Conclusion***

2. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after



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the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GWENDOLYN BLACKWELL whose telephone number is 571-272-5772. The examiner can normally be reached on Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil can be reached on 571-272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/GWENDOLYN BLACKWELL/  
Primary Examiner, Art Unit 1794